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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,561	12/31/2003	Ali S. Sadri	42P17322	5695

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EXAMINER	
PHAM, TUAN	
ART UNIT	**PAPER NUMBER**
2618	

DATE MAILED: 12/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/750,561	SADRI ET AL.	
	Examiner	Art Unit	
	TUAN A. PHAM	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however; may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14-24,27-34 and 37-40* is/are rejected.

7)☒ Claim(s) *13,25,26,35,36 and 41* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 02/07/2005 has been considered by Examiner and made of record in the application file.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-8, 14-15, 16-17, and 37-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Walton et al. (Pub. No.; US 2003/0043732, hereinafter, "Walton").

Regarding claims 1, 16, and 37, Walton teaches a method and an apparatus comprising:

a transceiver (see figure 3, TX 320, RX 332), to establish a multicarrier communication channel with a remote transceiver (see figure 3, TX 364, RX 356); and

a subcarrier management agent (SMA) (read on controller 334 with full CSI), coupled with the transceiver, to identify at least a subset of a plurality of subcarriers (read on frequency subchannel) within a wireless channel that fail to meet a threshold channel performance metric (see [0031, 0036]);

deactivating the identified subset of the plurality of subcarriers (see [0031, 0036], when the transmission channel detect the channel below the SNR or threshold, these channels are not in used); and

selectively distributing a power budget across a remaining subset of the plurality of subcarriers to provide a substantially optimal channel throughput within the given power budget (see [0031, 0036], only distribute the power to the good channel).

Regarding claim 2, Walton further teaches the remaining subset of the plurality of subcarriers are active subcarriers (see [0031], read on good channel).

Regarding claims 3, 17, and 38, Walton further teaches sorting the subcarriers according to a channel performance metric; and identifying as a threshold among the sorted subcaniers a subcarrier that fails to meet a channel performance metric

threshold, wherein the subcarriers above or below the threshold are identified as bad subcarriers (see [0031, 0036], it is inherent that Wallton teaches the sort the bad channel).

Regarding claim 4, Walton further teaches the channel characteristics used to identify underperforming subcarriers are obtained from a remote device (see figure figure 3, base station 310).

Regarding claim 5, Walton further teaches coding (see [0030]).

Regarding claim 6, Walton further teaches the channel state information is representative of one or more of channel performance characteristics and channel quality characteristics (see [206, 210]).

Regarding claim 7, Walton further teaches SNR (see [0036]).

Regarding claim 8, Walton further teaches BER (see [0028]).

Regarding claim 14, Walton further teaches issuing a message to a remote transmitter to apply the power distribution among the remaining subset of the plurality of subcarriers (see figure 3, base station, mobile, [0031, 0036]).

Regarding claim 15, Walton further teaches the channel characteristics used to identify underperforming subcarriers are measured at a local receiver (see figure 5, [0180-0184]).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 27-28, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walton et al. (Pub. No.; US 2003/0043732, hereinafter, "Walton") in view of Shinichi et al. (Pub. No.: US 2002/0058483, hereinafter, "Shinichi").

Regarding claim 27, Walton teaches a system comprising:

a transceiver, couple with at least a subset of theantenna (see figure 3, TX 320, RX 332), to establish a multicarrier communication channel with a remote transceiver (see figure 3, TX 364, RX 356); and

a subcarrier management agent (SMA) (read on controller 334 with full CSI), coupled with the transceiver, to identify at least a subset of a plurality of subcarriers (read on frequency subchannel) within a wireless channel that fail to meet a threshold channel performance metric (see [0031, 0036]);

deactivating the identified subset of the plurality of subcarriers (see [0031, 0036], when the transmission channel detect the channel below the SNR or threshold, these channels are not in used); and

selectively distributing a power budget across a remaining subset of the plurality of subcarriers to provide a substantially optimal channel throughput within the given power budget (see [0031, 0036], only distribute the power to the good channel).

It should be noticed that Walton fails to teach a dipole antenna. However, Shinichi teaches such features (see [0048]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shinichi into view of Walton in order to receive or transmit the signals.

Regarding claim 28, Walton further teaches the SMA identifies underperforming subcarriers by sorting the subcarriers using a channel characteristic of the subcarriers, and identifying as a threshold among the sorted subcarriers a subcarrier that fails to meet a channel performance metric, wherein the subcarriers above or below the threshold are identified as bad subcarriers (see figure 3, controller 334 wit CSI, [0031, 0036], it is inherent that Wallton teaches the sort the bad channel).

Regarding claim 31, Walton further teaches coding (see [0030]).

Regarding claim 32, Walton further teaches the channel state information is representative of one or more of channel performance characteristics and channel quality characteristics (see [206, 210]).

Regarding claim 33, Walton further teaches SNR (see [0036]).

7. Claims 9-12, 18-23, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walton et al. (Pub. No.; US 2003/0043732, hereinafter, "Walton") in view of Castelain et al. (US Patent No.: 5,307,376, hereinafter, "Castelain").

Regarding claim 9, Walton disclosed invention, but fails to disclose an effective noise power associated with each of the channel. However, Castelain teaches such features (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Castelain into view of Walton in order to distribute the power for the system.

Regarding claim 10, Walton further teaches SNR (see [0036]).

Regarding claim 11, Walton further teaches bad subcarriers are identified as those failing to meet a threshold signal to noise ratio (see [0036]).

Regarding claim 12, Walton further teaches determining a throughput for each of a plurality of RATE (see [0030], combine of encodind and modulation type).

Regarding claims 18 and 39, after combine, Walton further teaches identifies as the threshold a subcarrier that fails to meet a signal to noise threshold (see [0036]) and Castelain teaches effective noise power of the channel (see abstract).

Regarding claim 19, Walton further teaches channel state information (see [0029]).

Regarding claim 20, Walton further teaches coding (see [0030]).

Regarding claim 21, Walton further teaches the channel state information is representative of one or more of channel performance characteristics and channel quality characteristics (see [206, 210]).

Regarding claim 22, Walton further teaches SNR (see [0036]).

Regarding claim 23, Walton further teaches BER (see [0028]).

8. **Claims 24 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walton et al. (Pub. No.; US 2003/0043732, hereinafter, "Walton") in view of Medvedev et al. (Pub. No.: US 2006/0116155, hereinafter, "Medvedev").**

Regarding claims 24 and 40, Walton disclosed invention, but fails to discloses identifies a maximal rate for a given set of channel characteristics, and distributes the overall transmit power budget P total among the remaining active subcarriers. However, Medvedev teaches such features (see [0044-0049]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Medvedev into view of Walton in order to distribute the power for the system.

9. **Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walton et al. (Pub. No.; US 2003/0043732, hereinafter, "Walton") in view of Shinichi et al. (Pub. No.: US 2002/0058483, hereinafter, "Shinichi") as applied to claim 27 above, and further in view of Castelain et al. (US Patent No.: 5,307,376, hereinafter, "Castelain").**

Regarding claim 29, Walton and Shinichi, in combination, fails to teach an effective noise power associated with each of the channel. However, Castelain teaches such features (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Castelain into view of Walton and Shinichi in order to distribute the power for the system.

Regarding claim 30, Walton further teaches channel state information (see [0029]).

10. **Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walton et al. (Pub. No.; US 2003/0043732, hereinafter, "Walton") in view of Shinichi et al. (Pub. No.: US 2002/0058483, hereinafter, "Shinichi") as applied to claim 27 above, and further in view of Medvedev et al. (Pub. No.: US 2006/0116155, hereinafter, "Medvedev").**

Regarding claim 34, Walton and Shinichi, in combination, fails to discloses identifies a maximal rate for a given set of channel characteristics, and distributes the

overall transmit power budget P total among the remaining active subcarriers. However, Medvedev teaches such features (see [0044-0049]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Medvedev into view of Walton and Shinichi in order to distribute the power for the system.

Allowable Subject Matter

11. Claims 13, 25-26, 35-36, and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Pham whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2618
December 1, 2006
Examiner

Tuan Pham

Supervisory Patent Examiner
Technology Center 2600

Matthew Anderson